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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,764	12/12/2001	Haruhiko Yamamoto	01-807	8667
24319	7590	07/12/2005	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035				TRINH, HOA B
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 07/12/2005

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/020,764

Filing Date: December 12, 2001

Appellant(s): YAMAMOTO ET AL.

Mr. Rick Barnes  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**  
**JUL 12 2005**  
**GROUP 2800**

This is in response to the appeal brief filed May 25, 2005.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 1-4 and 7-19 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

4,237,601	Woolhouse et al.	12-1980
6,642,477	Patel et al.	11-2003

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4 and 7-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (Woolhouse, hereinafter) in view of Patel et al. (Patel, hereinafter). This rejection is set forth in a prior Office Action, mailed on June 22, 2004. A duplication of the claims' rejection is as follows:

Claims 1-2, 4, 7, 11-17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (4,237,601) in view of Patel et al. (6,642,477).

Woolhouse et al. (4,237,601) discloses a method of forming a hole/groove(feature) in a substrate, where residue within the feature can be remove, the method comprising:

As to claims 1, 5-6, forming an upper sidewall portion of the feature 22 , the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, and forming a lower sidewall portion of the feature, the lower sidewall portion forming a void 22 in the substrate 10, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion. The upper sidewall portion and the lower sidewall portion are formed by laser facets of the substrate. See column 1, lines 25-30, and see figure 2b.

However, Woolhouse et al. does not explicitly state that the upper and lower sidewall portions are formed by laser ablation.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19)

As to claim 2, Woolhouse et al. teaches that the upper sidewall angle of the upper sidewall portion is 54 degree which falls within the claimed range. See column 4, lines 55-60.

As to claim 4, Woolhouse et al. teaches that the lower sidewall portion is inherently formed before the upper sidewall portion is formed. See figure 2b.

As to claim 7, Woolhouse et al. teaches that the feature comprises a blind bore 22 formed in the substrate. See figure 1b.

As to claim 11, Woolhouse et al. teaches that the substrate 10 comprises silicon. See column 3, line 24.

As to claim 12, Woolhouse et al. teaches that a feature 22 formed according to the method of claim 1. See figure 1b.

As to claim 13, Woolhouse et al. teaches that an integrated circuit substrate 10 having features 22 formed according to the method of claim 1. See figure 1b.

As to claim 14, Woolhouse teaches a method for forming indicia elements on a substrate, where the indicia elements have a shape that aids in removal of foreign material from the indicia

elements on the substrate 10, the method comprising the steps of forming an upper sidewall portion of the indicia elements 22, the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, forming a lower sidewall portion of the indicia elements, the lower sidewall portion forming a void in the substrate, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion, and forming the indicia elements in a pattern to form identifying indicia on the substrate. The upper sidewall portion and the lower sidewall portion are formed by laser ablation of the substrate. See column 1, lines 25-30, and see figures 1b, 2b.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19)

As to claim 15, Woolhouse et al. teaches that all of the upper sidewall portions of all of the indicia elements are formed prior to forming any of the lower sidewall portions of any of the indicia elements. See figure 1b.

As to claim 16, Woolhouse et al. teaches that all of the lower sidewall portions of all of the indicia elements 22 are formed prior to forming any of the upper sidewall portions of any of the indicia elements. See figure 1b.

As to claim 17, Woolhouse et al. teaches that a preceding one of the indicia elements is completely formed prior to forming a seceding one of the indicia elements. See figure 1b.

As to claim 19, Woolhouse et al. teaches that an integrated circuit substrate 10 having identifying indicia formed according to the method of claim 14. See figure 2b and column 1, lines 7-45.

Claims 3, 8-10, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (4,237,601) in view of Patel et al. (6,642,477).

The combined teaching of Woolhouse et al. (4,237,601) and Patel et al. discloses the invention substantially as claimed. However, Woolhouse et al. (4,237,601) and Patel et al. do not explicitly teach that the lower sidewall angle is about 60-90 degrees and the depth of the sidewalls are about 4-8 microns. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the angle and depth according to the sidewalls of Woolhouse et al. (4,237,601) with the specific ranges, as claimed, since it is *prima facie* obvious to an artisan's experimentation and optimization to create specific range of angle for the lower sidewall and specific range of depth for the upper sidewall because applicants have not yet established any criticality for the specific ranges in the present specification.

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. (*In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).)

**(11) Response to Argument**

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Woolhouse discloses the invention substantially as claimed, except using laser ablation to form the upper sidewall and the lower sidewall of the hole in the substrate. Patel teaches the use of laser ablation (col. 1, line 16) to make a hole in the substrate. Woolhouse and Patel are analogous art because both references teach a method of making a hole in the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Woolhouse with laser ablation, as taught by Patel, so as to provide an alternative method in making a V-groove in the substrate. Note that the use of laser ablation in Patel would not destroy the invention of Woolhouse, because an artisan can make the V-groove of Woolhouse in the substrate first and then the artisan deposits layer 18 and layer 19 of Woolhouse over at least a portion of the V-groove.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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July 7, 2005

Conferees  
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